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EFFECT OF THE NEW GOLD UPON PRICES.

BY CHARLES A. CONANT.

ONE of the most fascinating problems of economic science connected with the great gold and silver discoveries of the sixteenth and nineteenth centuries has been the effect of the new metal upon prices. The quantitative theory of money has been much called in question in recent years, but it was accepted almost religiously by many of the economists who wrote at the time of the great Californian and Australian discoveries. According to this theory, in its crudest form, prices were bound to advance in just the proportion which the new supplies of the precious metals bore to those already in existence. While this did not occur in any case, the changes in prices were sufficiently radical after the opening of the American mines in the sixteenth century to justify the opinion that they were due chiefly to the increase in the supply of gold and silver, and they were sufficient after the Californian and Australian discoveries to establish a reasonable probability that they were due in part to the same cause. It is an interesting question whether in our own time another revolution in nominal values is to be accomplished by the infusion of a great mass of new gold into the currency systems of the world.

It will be useful to lay the groundwork for an answer to this question by reviewing the history of previous great additions to the supply of metallic money and their supposed effect upon prices. The supply of the precious metals in the western world, both gold and silver, was greatly reduced during the barbaric ages by abrasion, the loss of hidden treasure, and the export of the metals to the East. The art of mining, by the separation of the precious metals from the ores and from the inferior metals with which they were mingled, was lost with the decline of the

Roman Empire; and, according to Mr. Jacob, a high authority on the subject, there was a decline in the visible supply of precious metals available for use as money from £358,000,000 (\$1,750,000,000) in 14 A. D., to £34,000,000 (\$170,000,000) at the time of the discovery of America, in the year 1492.

Treasures of gold and silver were found almost as soon as America was discovered, but they were trifling in amount until 1545, when the silver mines of Cerro de Potosi were opened. Even this event did not increase the supply of the precious metals at a rate exceeding £2,100,000 (\$10,000,000) annually, according to Mr. Jacob, but this was an increase of about six per cent. a year upon the scanty stock existing in 1492. The seventeenth century witnessed a farther increase in the annual supplies of the precious metals, chiefly by the opening of mines in Brazil, and the annual average production during that period is reckoned at £3,375,000 (\$16,500,000).

Mr. Jacob made elaborate calculations for abrasion and export to the East, which were entirely too high, but as all the figures are estimates, it is not worth while to modify Mr. Jacob's computation that £297,000,000 (\$1,450,000,000) of gold and silver remained in the western world at the end of the seventeenth century (1699) for monetary uses. The mines of Mexico became productive in the eighteenth century, and the visible monetary stock of the precious metals, in 1810, with deductions for losses and other uses than coin, amounted, according to Mr. Jacob, to £380,000,000 (\$1,850,000,000). This is a little less than one-quarter of the visible stock of metallic money existing in the world to-day.

Before dealing with the discoveries of the fifth decade of the present century, it will be well to investigate the effect upon prices of the infusion of new gold and silver into the scantily-fed channels of circulation of the sixteenth, seventeenth and eighteenth centuries. Spain was the first of European countries to feel the force of the new gold and silver, since it was mostly taken from her colonial mines and shipped to the government or to Spanish merchants at home. "In the chief towns of Spain," according to Mr. Cliffe Leslie, "prices seem to have risen even before the fifteenth century had closed." The influence of increased prices was not felt in England, according to Adam Smith, until about 1570. From that year until 1640 silver sank so rapidly in

purchasing power that corn rose in cost from about two ounces of silver per quarter to six or eight ounces. Fixed incomes shrank seventy-five per cent. in their power of purchasing the means of living, and pauperism spread rapidly in England on that account. "Nor is it improbable," says Mr. L. L. Price, "that the difficulties of Charles the First, and the eventful quarrel which followed, were partly due to the increased expenditure of the Court necessarily occasioned by the rise of prices." Mr. Hume computed that prices of all things had risen three or four times since the discovery of the West Indies, and Mr. Jacob computed the increase at the ratio of 470 to 100.

The early part of the nineteenth century was marked by an arrest in the increase of the supply of the precious metals. There was a considerable improvement in production after 1830, which by 1848 was sufficient to supply losses and afford a slight increase in the stock of metallic money. The entire production of gold from 1493 to 1850 was calculated by Professor Sootbeer at 4,752,070 kilograms, representing a value of about \$3,168,047,000, while the production of silver was calculated at 149,826,750 kilograms, representing a value of about \$6,292,-723,000.

Upon these conditions came the great discoveries of gold in California and Australia. The production of gold rose at a leap from an annual average of \$13,484,000, in the decade ending with 1840, to \$36,393,000, for the decade ending with 1850, and to \$132,513,000 for the five years ending with 1855. The yield of gold did not fall much below these figures until the fifteen years ending with 1885, when the annual average was only about \$110,000,000. The production did not again show radical changes until after 1890, when a new era of progress set in as the result of the great gold production of the Witwatersrand region of South Africa. The effect of the Californian and Australian discoveries upon prices was spent before 1870, and the results of the South African discoveries belong to a later era.

We are now dealing with gold alone, and it was in gold that the great increase in production took place prior to 1870. As there is not occasion here to discuss the bimetallic problem, it will not detract essentially from the force of comparisons if the entire amount of metallic money computed by Mr. Jacob as existing in 1830—\$1,500,000,000—is considered as consisting of gold,

although in fact silver was then the preferred metal in the monetary systems of leading Continental states. The product of a single year from the Californian and Australian mines added eight per cent. in gold to this existing supply, if no deductions are made for losses. Ten years ending with 1860 added \$1,332,981,000 to the production of gold, and another period of ten years swelled this amount by another sum of \$1,263,115,000. The most liberal deductions for use in the arts, for abrasion, and for export to the East, could not fail to leave in this enormous mass of gold a potent influence upon monetary conditions.

If the quantitative theory of money—that prices move upward and downward in direct relation with the supply of monetary signs—had operated with rigorous exactness, prices must again have doubled or trebled under the influence of the wonderful outpouring of the Californian and Australian mines. Many of the classical political economists anticipated exactly this result. Chevalier recommended that France take energetic measures to preserve her credit by reducing the legal value of her existing gold coins, and firmly adhering to the silver standard. Several other countries seriously contemplated relegating gold to a subordinate place and making silver the single standard of value because it was less subject to fluctuation. Mr. W. Stanley Jevons, the eminent English economist, wrote a paper, as late as 1863, in which he predicted that the depreciation in the purchasing power of gold would cause a rise in prices of from 40 to 50 per cent.

That some rise in prices actually occurred hardly admits of dispute, and it may perhaps be attributed to the infusion of gold into the circulation, because it ran counter to the almost universal downward tendency of prices caused by improved methods of production and the increased efficiency of labor. The moderate character of this increase may be judged, however, from the fact that when Chevalier wrote (in 1857) silver was at a premium of only four per cent. in Paris. In England Mr. Jevons, by a careful comparison of averages and index prices, reached the conclusion that the rise of prices attributable in a general way to the increase in the gold supply was between 6.76 and 16.2 per cent., and averaged about 10.25 per cent.

Definite calculations regarding the yield of the Klondike region cannot yet be obtained. There is no reason, however, to

doubt that it will prove nearly as productive as the Californian and Australian mines a generation ago, and the South African mines which were opened about a decade ago. None of these sources of supply has shown serious signs of exhaustion, and the Ural Mountains, where the mines have been open for two generations or more, still contribute largely to the annual gold supply of the world. Only a few million dollars have thus far been actually delivered at the mints and assay offices of the United States from the new mining regions of the far North; but the amount brought in is large in view of the fact that it consists of nothing but the placer washings, and that there are only three months of the season in which it is possible for the washings to take place.

The supply of gold was already increasing rapidly in recent years, in advance of the discovery of the Klondike supplies. The official figures of Mr. Robert E. Preston, the Director of the Mint of the United States, show a gold production throughout the world of \$118,848,700 for the calendar year 1890, \$130,650,000 for 1891, \$146,651,500 for 1892, \$157,494,800 for 1893, \$181,567,800 for 1894, \$200,406,000 for 1895, and \$206,000,000 for 1896; and trustworthy estimates place the amount for 1897 at \$240,000,000. The aggregate production, from the discovery of America to the close of 1896, is computed by the Director of the Mint at about \$9,000,000,000. Of this amount, something over \$3,000,000,000 had been mined before 1850. Only a portion of the entire production has been devoted to monetary uses, and much has been lost. The gold currencies of the world, including bullion used for monetary purposes, were computed by the Director of the Mint in 1896 at \$4,359,600,000.

Several important questions have to be answered before an intelligent opinion can be formed as to whether the new gold supplies will have any visible effect upon prices, and what that effect, if any, will be. These questions may be formulated thus:

1. What proportion will the new gold supplies bear to the existing stock and to previous additions to the supply?
2. What portion of the annual gold supply will be devoted to monetary uses?
3. Will there be a demand for the new monetary gold from countries other than those now having a gold currency?

4. Does an increase in the supply of monetary gold in a gold standard country necessarily affect the prices of commodities?

I. With a gold production for 1897 estimated at \$240,000,000, it is evident that the new goldfields will have to prove exceptionally productive in order to add a great percentage to the world's annual supply of gold. If they should yield \$60,000,000 per year, carrying the total annual production to \$300,000,000, they would still be adding only 25 per cent. to the previous annual increase. The effect of new supplies of the precious metals is greatly restricted by the fact that the additions have to be set against the whole mass already in existence. An addition of 25 per cent. to the annual production of wheat or corn, or even of more permanent industrial products, like iron or copper, would have a marked effect upon prices. Gold is undoubtedly influenced, like all other articles, by the law of supply and demand, but the supply in any one year is only a small addition to the amount already in the market. All the gold of the world used as coin or bullion in monetary exchanges is constantly in the world's money market, capable of being purchased by commodities directly or by slight premiums in rates of exchange.

It has been shown that the visible stock of monetary gold existing in the world to-day is about \$4,360,000,000. Reasons will soon be given for thinking that another sum of \$1,000,000,000 is concealed in private hoards. The mathematical elements of the problem, therefore, are: An aggregate gold production within historic times of \$9,000,000,000; a visible supply of gold in use as money of \$4,360,000,000; and a possible annual increase of the supply from \$240,000,000 in 1897 to \$300,000,000 in future years.

II. The second question—what portion of the new gold will be devoted to monetary uses—suggests the interesting inquiry, what has become of the difference between the whole amount of gold produced and the amount now visible in coin and bullion? The amount to be accounted for is \$4,800,000,000, and represents more than half of the gold which has been produced since 1492. There are three channels through which this difference has been absorbed, which may be briefly treated thus:

Abrasion.—The loss from this cause is much less than is commonly supposed. Mr. Jacob put the abrasion of coins, in-

cluding losses at sea and from other causes, at 10 per cent. in thirty-six years. This is altogether excessive. The loss by abrasion has been several times carefully calculated by the authorities of the British and Continental mints, and has been found to amount to an average of about one-half of one per cent. in a century. This means a loss of five per cent. in 1,000 years, or about two per cent. in 400 years. If the entire mass of gold mined since the discovery of America had been in use in 1492, the loss by abrasion up to 1892 would have been about \$180,000,000. But nearly two-thirds of the world's gold production has been mined since 1850 and cannot have suffered abrasion for a longer period than forty years. This would afford a loss of about two-tenths of one per cent., or \$11,600,000 for the entire period.

Exportation to the East.—India, China, and other countries of the Orient have been great absorbers of the precious metals since they began to contribute their silks, teas, and other articles to Western consumption. Even during the Middle Ages the overland traffic absorbed great quantities of Western gold and silver, and made India, in the graphic language of historical writers, “a sink of the precious metals.” The semi-civilized state of those countries makes gold the most highly prized form of wealth, because it can be most conveniently concealed when civil war, robbery, and excessive taxation threaten the confiscation of visible property. The statistics of the shipments of gold to India from 1836 to the close of the fiscal year ending March 31, 1896, show net imports of \$713,269,550. The figures for silver show net imports of \$1,825,000,000. These figures afford only a partial idea of the quantity of the precious metals which have gone to the East within the past four centuries. It would probably be far within the limits of moderation to put at \$1,000,000,000 the amount of the world's gold which has gone to the Orient.

Use in the Arts.—This is a very considerable channel for the employment of gold, and has absorbed a large proportion of the sum of \$4,800,000,000, which is not available for monetary uses. Professor Sootbeer estimated the consumption of gold alone in 1885 at about \$60,000,000, while the present consumption is estimated by the Director of the Mint at about \$65,000,000. A rate of consumption like this, if extended backwards, would eat up the gold supply very rapidly, absorbing \$650,000,000 in ten

years, and nearly \$2,000,000,000 in a generation. This rate is, of course, not admissible except for the last few years, and may be exaggerated by the inclusion of old gold which is remelted.

The estimate of the consumption of gold in the arts is surrounded with some difficulties, in view of the large amount available for this purpose after monetary uses and the Eastern demand are deducted. The difficulty does not lie so much with the annual consumption as with the excessive amount existing in the world in this form, if the other estimates are correct. The deduction of \$4,300,000,000 in monetary gold and \$1,000,000,000 in gold locked up in India and the East leaves about \$3,800,000,000 for other uses. The population of the civilized countries, mostly having gold in their currencies, is less than 900,000,000. The supply of gold, therefore, for non-monetary uses is more than \$4 per capita, which amounts to \$20 for a family of five. It is difficult to believe that this proportion of non-monetary gold exists on the average among the rich and poor throughout the world. A more reasonable hypothesis is that the gold in the form of coin and bullion which is officially reported as available for monetary uses includes only that which is visible in the circulation and in bank reserves. Great sums, which can only be guessed at, are undoubtedly concealed in private hoards in such countries as South and Central America, where the official returns give \$40,000,000 and \$500,000 respectively of monetary gold. If this concealed monetary gold amounted throughout the world to \$1,000,000,000, it would reduce the gold employed in the arts to \$2,800,000,000, or about \$15 to every family in the civilized world.

In dealing with the annual supply of new gold, account has to be taken of the annual deductions for the arts and for export to the East. The sum of \$20,000,000 may be assumed for convenience as the annual loss to the Western world by gold exports to the East. If \$65,000,000 goes into the arts, \$85,000,000 has to be deducted from the production of the year in order to ascertain the amount of gold available for monetary uses. Upon the basis of the production of \$240,000,000 expected during the current year, \$155,000,000 will be available for addition to the world's money supply. If the new gold regions increase the world's production to \$300,000,000, the amount left available for monetary uses will rise to \$215,000,000. This may fairly be assumed to

represent the amount of annual increase in the world's supply of gold money for some years to come.

What proportion will this sum of \$215,000,000 bear to the accumulated stock of monetary gold? If this stock is already \$4,300,000,000, the annual addition of \$215,000,000 will amount to exactly five per cent. Ten years would carry this amount to 50 per cent. of the existing supply, but this is only half the rate of increase attained between 1850 and 1870. The additions to the existing stock, moreover, will not come with the suddenness of those which came in the middle of the century, because the annual average increase for a long series of years has been considerably above \$100,000,000, of which probably \$60,000,000 per year has easily been available for monetary purposes.

III. The question whether the new monetary gold will be largely needed by countries now without a gold currency is being answered almost daily in the affirmative. The Empire of Japan decided in the spring to change from the silver to the gold standard. The Bank of Japan has been carrying a gold reserve of from \$25,000,000 to \$50,000,000, but will be compelled to greatly increase this amount in order to maintain gold redemption. Mexico seems on the verge of adopting the gold standard, in order to escape the effects of the alarming fluctuations in the value of silver, and her expanding business might require \$100,000,000 or \$200,000,000 in gold. The government of British India in 1893 suspended the free coinage of silver rupees and endeavored to give them a fixed gold value. Chile, Peru, and Costa Rica have recently adopted the gold standard and need increased supplies of gold.

This is only the beginning of the possible demands for the new gold supplies. Russia and Austria-Hungary have been endeavoring for several years to accumulate a sufficient supply of gold for the resumption of specie payments. Russia holds more than \$600,000,000, and Austria-Hungary more than \$150,000,000. Both these countries, especially the latter, will be benefited in obtaining gold by the new supplies. They will not find that a much smaller quantity of commodities will have to be rendered up in exchange for the new gold, but they will find premiums lower and other countries bidding a lower interest rate to keep their gold at home. An increase in the world's supplies renders it easier for countries of comparative poverty of resources

to provide themselves with a gold currency, because they encounter less competition than before, in the form of trifling premiums and adverse exchanges, in retaining their gold.

IV. The last branch of our inquiry—whether prices are affected by an increase in the supply of metallic money—raises an issue of which the discussion has filled volumes. It is a truth familiar to the political economist, which may be noted in passing, that additions to the stock of precious metals, for use purely as money, are not additions to the world's wealth. Trade is in its essence the barter of one article for another. Money, whether of metal or paper, is not an end in itself. It is simply the convenient medium for making barter easy. Additions to the monetary supply simply increase the available equipment of the medium for carrying on exchanges. This may be desirable in some cases and undesirable in others, according to the existing supply of such media. If every portion of the world was adequately supplied to-day with the means of monetary exchanges, it would be possible to echo the lament of Mr. Richard Cobden, in the preface to his translation of Chevalier's work on the fall of gold, regarding an event "the effect of which is, instead of increasing the supply of food, raw material or capital, simply to render more bulky and abundant an instrument of exchange the chief merit of which before consisted in its scarcity and portability."

If there be countries whose medium of exchange is unsatisfactory or insufficient, new supplies of gold may be of great value to them. The countries which are the richest are apt to have the amplest gold currencies—not so much because the gold is wealth as because they can afford to carry capital in this form in addition to all that is required for their machinery of production. It has long been the fashion of political economists to berate the folly of those peoples who failed to maintain a currency interconvertible with gold and silver. Such rebukes are well founded when directed against a prosperous people, but the philosophy of economic history is likely to show that many peoples who have gone without a metallic currency have done so from the same motives which actuate the poor in discarding many of the sound economies of the rich. A considerable increase in the gold supply may mean much to such nations, especially if they are just passing from irredeemable paper to the gold basis. This is the position of several important nations to-day.

If a great addition to the gold supply could be injected into the currency of a people already provided with an adequate supply of gold for carrying on their exchanges, some rise of prices might occur. The increase in prices, however, would probably be far from commensurate with the relation which the new gold bore to the existing stock. Three conditions would be essential to any visible effect upon prices—that the new stock of gold should be very considerable; that the existing currency should be based chiefly on gold and not on paper credit; and that the new gold should actually enter into the circulation and should not be accumulated in bank reserves or private hoards. If uncovered paper constituted a large element of the circulation, the new gold might simply supersede so much paper without any visible effect upon other conditions. If the new gold was simply added to bank reserves or the holdings of a few individuals, it would have only a speculative effect upon prices and not the automatic proportional effect asserted by the quantitative theory. A demonstration of this proposition occurred in recent history, when great masses of new gold from the Transvaal country poured into Great Britain. A great part of it went into the reserves of the Bank of England, which increased from £19,712,368 upon the average of the last quarter of 1889 to £44,960,056 on January 1, 1896. Here was an increase of \$125,000,000, which represents nearly one-quarter of the estimated gold currency of the United Kingdom, without taking account of that portion of the Transvaal gold which might have found lodgment in other hands within the Kingdom. There was some fear that this great accumulation of monetary signs might lead to speculation, but that any direct effect upon prices was produced, by the mere increase in the volume of visible gold, was hardly asserted by the most *naïve* of the advocates of the quantitative theory.

The counters in trade, whether of metal or paper credit, are like freight cars in the handling of a great wheat or cotton crop. A certain number is absolutely required in order to accomplish desired results without delay or embarrassment, no matter how rapidly the means of accomplishing these results are shifted backwards and forwards in the current of transactions. The price of wheat is not regulated by the quantity of freight cars, but it is conceivable that it might appear to be so regulated if the supply

of cars were inadequate to move the crop and shippers were driven by a state of panic to pay a premium for their use. The charge for cars might in such a case be affected by the law of supply and demand. Gold, silver, and loanable capital are undoubtedly affected by the same great law, but neither the freight cars nor the gold are governed by the rigid proportion of value to quantity which is assigned to changes in the volume of money by the quantitative theory.

The fact that there might be a distinct demand for gold, independent of the quantitative theory, was recognized by Chevalier in the discussion of the possible means for absorbing the Californian and Australian supplies. His range of vision regarding such a demand was, however, limited by the narrow conceptions of his time. He noted the fact that France was absorbing great quantities of gold, but the data were not then complete which might have enabled him to measure fully the character and extent of the movement which was going on. As a matter of fact, France at that time not only exchanged great masses of silver for gold, but the increase in the supply of the precious metals enabled her to fill gaps in her medium of exchange in portions of the country where that medium was insufficient. Much of the new gold went, not to the barren work of duplicating the volume and dividing the value of means of exchange already in existence, but to the more useful object of affording a metallic medium of transactions where neither gold nor paper had before penetrated.

The official figures of the imports and exports of the precious metals during the nineteen years from 1852 to 1870, inclusive, show that France absorbed in net gold imports 5,007,000,000 francs (\$1,000,000,000). At the same time her net exports of silver from 1852 to 1864 were 1,726,000,000 francs. The silver exports ceased to exceed the imports during the next six years, when the relation of gold and silver was again oscillating around the legal ratio, and there were net silver imports of 562,000,000 francs. These, added to the great gold imports for nineteen years, and reduced by the net silver exports from 1852 to 1864, showed a net increase in the precious metals in France by the enormous sum of 3,843,000,000 francs (\$760,000,000), or a yearly average of 202,000,000 francs (\$40,000,000). Several German states felt the force of the golden shower, in spite of some

differences in their monetary systems, and throughout Europe and America the benefits of a substantial circulating medium, where there had been only an inadequate one, were felt with something of the force attributed to them in France by Prof. J. E. Horn, in his brilliant work, "*La Liberté des Banques*."

"In those *arrondissements* and cantons where formerly the bill was a myth and the gold louis a phenomenon, hundreds of thousands of francs and even millions in specie and in bills are now in continuous rotation, promoting a movement of transactions which grow in intensity and extent day by day. They constitute a potent dike against depression and depreciation. The ancient possessor of monetary capital is neither robbed nor defrauded by this increase in the quantity of instruments of circulation, whether the increase consists in real gold or in credit gold. On the contrary, he gains as much by it, more, perhaps, than the general public. The superior activity of exchanges assures to the aggregate of circulating capital employment more fertile, more constant, and, inasmuch as it stimulates production and renders products more abundant and less dear, it even increases the value and the purchasing power of the pre-existing gold."

A similar experience to that of France from 1850 to 1865 is likely to be that of some of the great civilized states to-day. The United States are capable of absorbing many millions of the new gold in giving stability to their currency system and without effect upon prices. They are rapidly reaching the position where they can afford such an investment of capital without impairing their resources of production. Russia and Austria-Hungary, as already pointed out, need to strengthen their equipment of the yellow metal. It is highly probable, moreover, that some of the countries which suspended the free coinage of silver after 1873, and have maintained their silver coins at parity with gold, will take advantage of the new gold supplies for replacing some of their overvalued silver. The sale of silver for gold has been publicly advocated in Belgium, and her financial position and that of the Netherlands would be greatly strengthened by such an exchange. Spain and Italy, now wallowing in the mire of depreciated paper, will resume specie payments upon a gold basis, if they resume at all, for their paper notes are above the bullion value of their silver coins. Throughout the world, indeed, exists a capacity for the absorption of the new gold, which will have no perceptible effect upon prices, but will operate, like the extension of railways and canals, to give ease and rapidity to the courses of production and exchange.

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